

## Ardops nichollsi. By J. Knox Jones, Jr., and Hugh H. Genoways

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### Ardops Miller, 1906

*Ardops* Miller, 1906:84. Type species *Stenoderma nichollsi* Thomas, 1891.

**CONTEXT AND CONTENT.** Order Chiroptera, Family Phyllostomatidae, Subfamily Stenoderminae. The genus *Ardops* is monotypic (Jones and Schwartz, 1967) as treated below.

### *Ardops nichollsi* (Thomas, 1891)

Lesser Antillean Tree Bat

*Stenoderma nichollsi* Thomas, 1891:529. Type locality island of Dominica, Lesser Antilles.

*Stenoderma montserratensis* Thomas, 1894:133. Type locality island of Montserrat, Lesser Antilles.

*Stenoderma luciae* Miller, 1902:407. Type locality island of St. Lucia, Lesser Antilles.

*Ardops annectens* Miller, 1913:33. Type locality island of Guadeloupe, Lesser Antilles.

*Ardops nichollsi*, Miller, 1906:84. First usage of current name combination.

**CONTEXT AND CONTENT.** Context as noted above. The species contains five currently recognized subspecies, as follows:

*A. n. nichollsi* (Thomas, 1891:529), see above.

*A. n. montserratensis* (Thomas, 1894:133), see above.

*A. n. luciae* (Miller, 1902:407), see above.

*A. n. annectens* Miller, 1913:33, see above.

*A. n. koopmani* Jones and Schwartz, 1967:11. Type locality near Balata, island of Martinique, Lesser Antilles.

**DIAGNOSIS.** The genus *Ardops* is monotypic; the following diagnosis thus applies to both genus and species. Size medium among stenoderminine bats; skull (figure 1) resembling that of *Artibeus* and generally those of related Antillean genera *Stenoderma*, *Phyllops*, and *Ariteus*; rostrum broad and moderately flattened, not depressed as in *Stenoderma*; sagittal crest distinct; supraorbital ridges and postorbital processes relatively heavy; mesopterygoid fossa deep, extending anteriorly to level of M1, narrowly U-shaped; incisive foramina separated only slightly from roots of incisors; sphenoid-basioccipital region distinctive; dental formula, i 2/2, c 1/1, p 2/2, m 3/3, total 32; M3 small, peglike; no metacone on first lower molar (see Miller, 1907:163-164, for extensive diagnosis).

**GENERAL CHARACTERS.** Average and extreme external measurements in millimeters of six males and seven females of *A. n. nichollsi*, the smallest subspecies, from Dominica are, respectively, as follows: total length, 63.8 (60-67), 67.1 (62-73); length of hind foot, 15.5 (15-16), 15.1 (13-16); length of ear, 17.4 (16-18), 17.7 (17-18); length of forearm (eight males averaged), 43.6 (42.5-44.9), 46.2 (44.9-48.8); weight of five males averaged 16.9 (15.1-18.5) g, whereas two nonpregnant females weighed 18.3 and 18.7. Average and extreme cranial measurements of eight males and seven females from Dominica are, respectively, as follows: greatest length of skull (including incisors), 21.1 (20.5-21.7), 22.2 (21.7-22.6); zygomatic breadth, 13.7 (13.4-14.2), 14.5 (14.2-14.8); postorbital constriction, 5.5 (5.3-5.9), 5.6 (5.3-5.9); mastoid breadth, 11.5 (11.2-11.9), 12.0 (11.8-12.1); breadth across upper molars, 8.9 (8.7-9.2), 9.6 (9.3-9.7); length of maxillary toothrow, 6.6 (6.2-7.0), 7.3 (7.0-7.5); length of mandibular toothrow (c-m3) 6.6 (6.3-6.9), 7.3 (7.0-7.5). In contrast, the same external and cranial dimensions of a male and female of *A. n. montserratensis*, the largest subspecies, from St. Eustatius, are, respectively: 69, 72; 18, 17; 18, 18; 51.1, 51.9; 23.4, 24.0; 15.5, 15.8; 6.1, 6.4; 12.6, 13.0; 10.1, 10.9; 7.7, 8.4; 7.6, 8.1. All above measurements are from Jones and Schwartz (1967).

The dorsal pelage varies in overall color from near Prout's Brown (capitalized color terms from Ridgway, 1912) or Bister to near Buffy Brown. The individual dorsal hairs are dark brownish basally, pale buffy in the middle, and tipped with

brown, giving a tricolored appearance to the pelage when it is parted. A white spot is present at the junction of the wing and the body. The ventral pelage is a rich brownish, tinged with grayish white; the hairs of the venter lack the tricolored appearance of the dorsum. The pelage of the dorsum is dense and relatively long, measuring 9 to 11 mm middorsally. The wing and interfemoral membranes are dark brownish, whereas the ears are paler brown. The tragus and basal parts of the ear, tinged with greenish yellow in life, are yellowish or yellowish brown on dried skins. Reflectance color values (using a Photovolt 610 Photoelectric Reflection Meter) of red, green, and blue on dorsum and venter, respectively, of 13 skins of *A. n. nichollsi* are: red, 15.3 (11-22), 18.6 (15-24.5); green, 6.3 (4-11), 10.0 (7-15); blue, 6.5 (4.5-8), 8.8 (6.5-13). The above remarks on pelage are from Jones and Schwartz (1967).

**DISTRIBUTION.** The species *Ardops nichollsi* is known on seven islands of the Lesser Antilles from St. Eustatius in the north to St. Vincent in the south (figure 2). *A. n. nichollsi* occurs only on the island of Dominica; *A. n. montserratensis* has been obtained on Montserrat and St. Eustatius; *A. n. luciae* is known from the islands of St. Lucia and St. Vincent; *A. n. annectens* occurs on Guadeloupe; and *A. n. koopmani* was described on the basis of four specimens from Martinique.

**FORM.** Prior to the revision of the genus by Jones and Schwartz (1967), all named taxa (four at that time) were recognized as distinct species. Other workers (Allen, 1942;

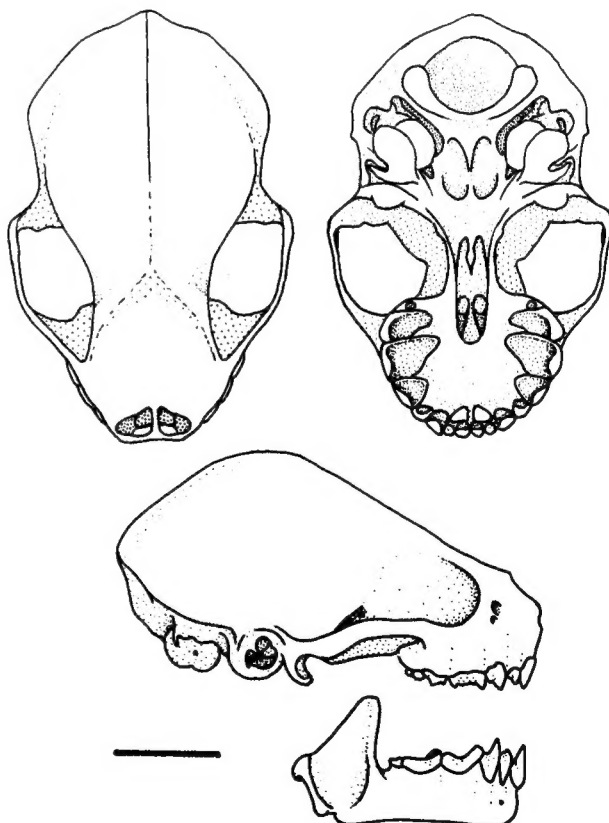


FIGURE 1. Dorsal, ventral, and lateral views of skull, and lateral view of lower jaw of *Ardops nichollsi nichollsi*, Texas Tech Univ. no. 9341, male, from Clarke Hall Estate, St. Joseph Parish, Dominica. Scale at lower left represents 5 mm. Illustration by Stephen L. Williams.

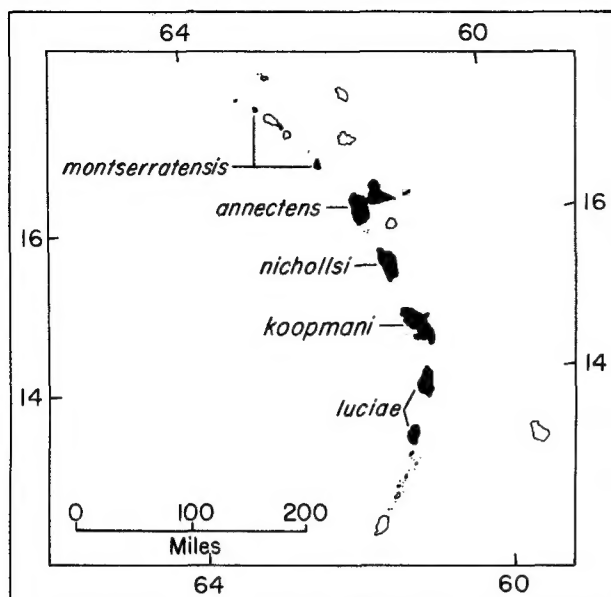


FIGURE 2. Distribution of subspecies of *Ardops nichollsi* in Lesser Antilles. See text for insular names. Figure after Jones and Schwartz (1967).

Hall and Kelson, 1959) had commented on the slight differences between the species. Jones and Schwartz concluded, after study of the available material and consideration of individual and secondary sexual variation, that all known taxa should be referred to a single species. Of the subspecies recognized by Jones and Schwartz, specimens of *A. n. nichollsi* from Dominica are smallest in size. In order of increasing size of individuals, the other recognized races are *A. n. luciae*, *A. n. annectens*, *A. n. koopmani*, and *A. n. montserratensis*. Members of the five subspecies form a continuum in size, but the continuum is not clinal, suggesting that the various insular populations have adapted independently to conditions prevailing on each island (Jones and Schwartz, 1967).

Striking secondary sexual variation in size obtains in specimens of *A. n. nichollsi* (see measurements above), females being larger than males. The same degree of variation evidently is present also in populations of *A. n. koopmani*, but sexual dimorphism in size may be less marked in other races.

Among the 29 skulls examined by Jones and Schwartz (1967), two specimens did not possess the full dental complement typical of *Ardops*. Both, a female from St. Eustatius and a female from St. Lucia, lacked the peglike M3 on the left side. These authors also noted considerable variation in size in both upper and lower third molars. In males of *A. n. nichollsi*, the M3 varied from .55 mm wide by .40 mm long up to .70 mm by .50 mm; in females of this subspecies the tooth varied from .70 by .45 mm up to .90 by .50 mm.

**REPRODUCTION.** Six females of *A. n. nichollsi* collected in the spring of 1966 were reproductively active (Jones and Schwartz, 1967). One taken on 19 April was lactating. The others each carried a single embryo on the following dates (crown-rump length in millimeters of embryos in parentheses): 27 March (11); 28 March (21); 29 March (31); 2 April (18); 14 April (29). A female of *A. n. montserratensis*, obtained on St. Eustatius on 9 March 1963, carried a single embryo that measured 15 mm in crown-rump length. Testes of March- and April-taken males of *nichollsi* varied in length from 4.5 to 6.0 mm.

**ECOLOGY.** Bats of the genus *Ardops* evidently roost exclusively in trees and other types of arborescent vegetation, although little precise data currently are available concerning their natural history. Information here recorded was summarized by Jones and Schwartz (1967). At Clarke Hall Estate on Dominica, one bat was trapped in a mist net (in which *Artibeus*, *Monophyllus*, and *Myotis* also were taken) stretched over a trail bordered by trees and a cacao grove, and eight were netted in company with *Artibeus*, *Brachyphylla*, *Monophyllus*, and *Sturnira* over a rock-strewn gravel bar in the Layou River. A female from 1 mi. NW Portsmouth, Dominica, was taken in a net stretched across a trail on the side of a

hill overlooking the Caribbean in dry, relatively scrubby forest; another female was captured on Prince Rupert Bluff near the same place in 1964. A male from 6 mi. NE Roseau, Dominica, was netted in 1962 over a stream in rain forest, whereas a female from Roseau was trapped along with several *Artibeus jamaicensis* in a net placed adjacent to a pond in the Botanic Garden.

In the original description of *A. n. montserratensis*, Thomas (1894) alluded to the habits of *Ardops* on Montserrat as follows: "This bat is said to hang all day under the branches of trees, and not take refuge in holes and crannies as most other species do." He also noted that it was thought responsible for "much damage to the cacao plantations," which may result from confusion of this species with the larger and more abundant *Artibeus jamaicensis*. The two specimens from St. Eustatius were collected at a steep-sided volcanic crater, "The Quill." One was taken in a mist net placed across a path at the rim of the crater in a net that also captured *Artibeus* and *Brachyphylla*; the other specimen was netted in a small banana plantation on the floor of the crater.

Allen (1942) wrote the following concerning specimens of *A. n. annectens*: "Dr. G. K. Noble, who secured an adult female and well-grown young in Guadeloupe in 1914, writes me that he found these hanging [in a tree?] together directly over a path he was following through the woods near Sainte Rose. Later his guide caught another. . . ." The four specimens of *A. n. koopmani* were captured near Balata, Martinique, in mist nets set over streams in second-growth (about 40 years old) montane rain forest.

Wing mites (Spinturnicidae) and hair mites (Listrophoridae) have been obtained from individuals of *A. n. nichollsi*.

**REMARKS.** Zoogeographically, the genus *Ardops* is an endemic of the Lesser Antilles of uncertain derivation (Koopman, 1968; Jones and Phillips, 1970). The closest relatives of *Ardops* are three other endemic Antillean genera, *Ariteus* of Jamaica, *Phyllops* of Cuba and Hispaniola, and *Stenoderma* of Puerto Rico and the Virgin Islands (Miller, 1907; Allen, 1911; Jones and Schwartz, 1967). Of these, *Ardops* may be related most closely to *Ariteus*, from which it differs principally in having a broader rostrum, narrower mesopterygoid fossa, distinctive sphenoid-basioccipital region, a small, peglike M3 (lacking in *Ariteus*), and the absence of any trace of a metaconule on the first lower molar.

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J. K. JONES, JR., AND H. H. GENOWAYS, THE MUSEUM, TEXAS TECH UNIVERSITY, LUBBOCK, 79409.